



# Cover Crops for Soil and Nutrient Conservation

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**KANSAS STATE**  
**UNIVERSITY**



# Cover Crop Craze

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# Fertilizer management

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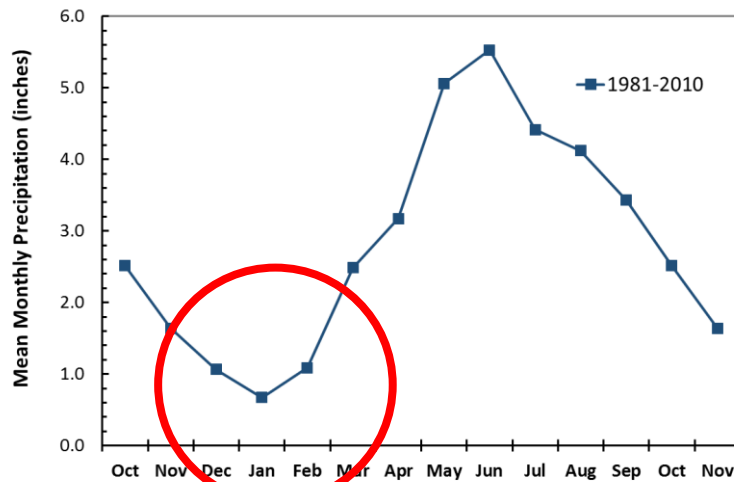
## RIGHT TIME

Makes nutrients available  
when crops need them.

Apply fertilizer when the crop  
needs it

- Split applications (for N)
- Apply close to planting (for P?)

Apply when there is less chance  
for loss





# How will cover crops affect sediment and P loss?

- Will cover crops reduce sediment loss in no-till?
- Will cover crops reduce P loss?...
- ...with surface broadcast fertilizer?



















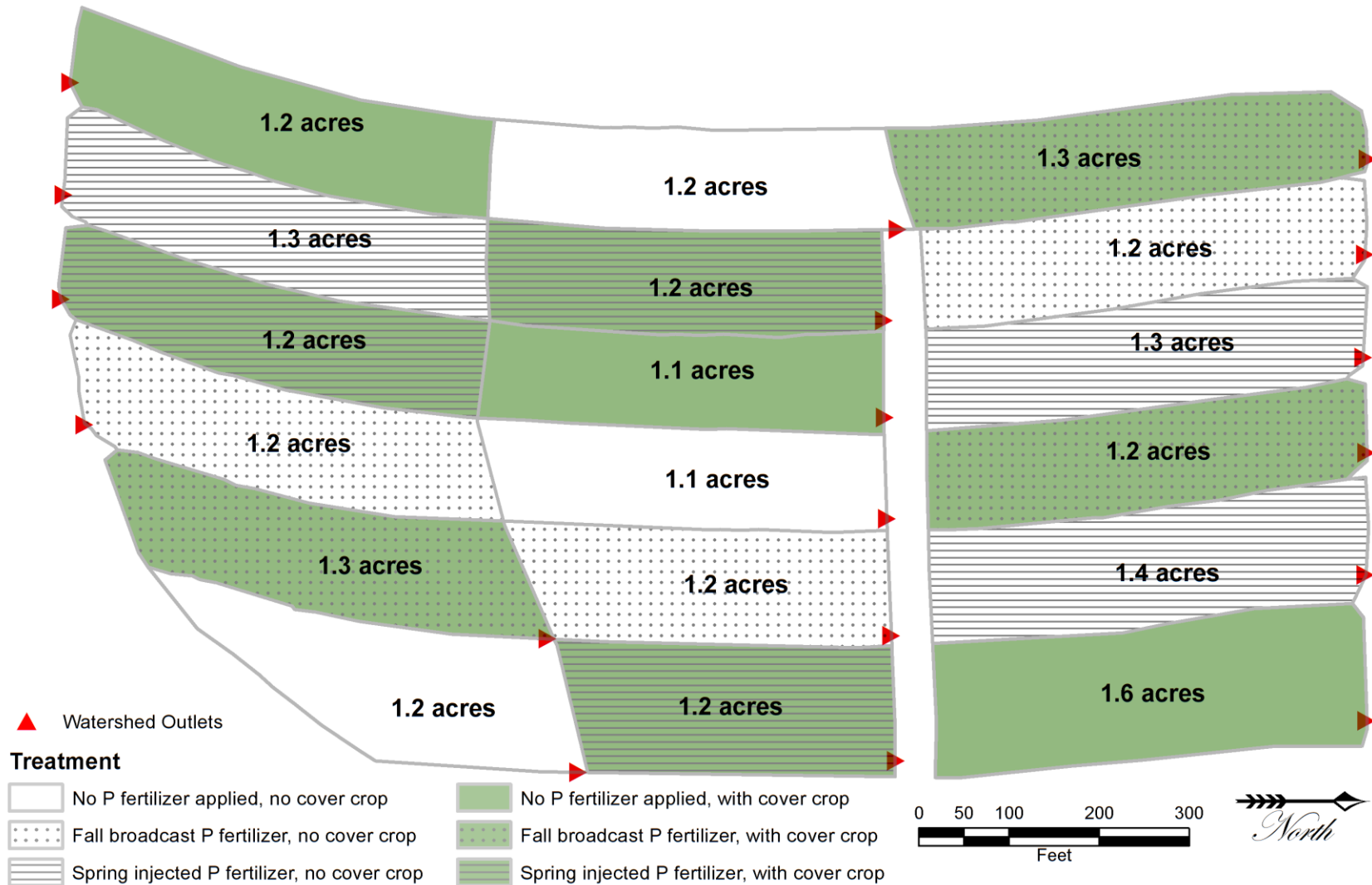














## Event-based flow-weighted composite samples

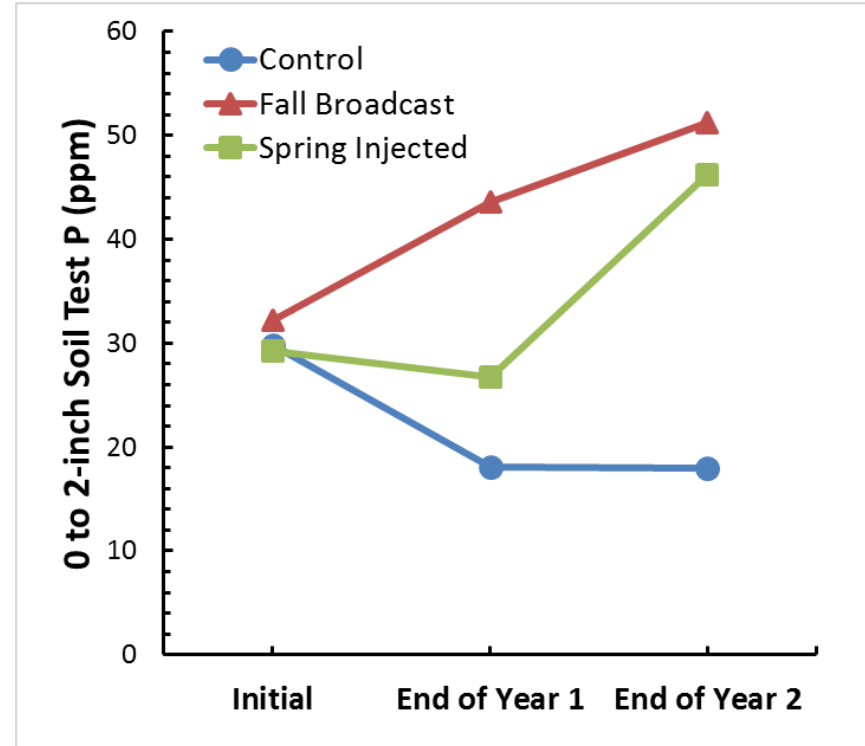
- Runoff
- Sediment
- Total P
- Dissolved P





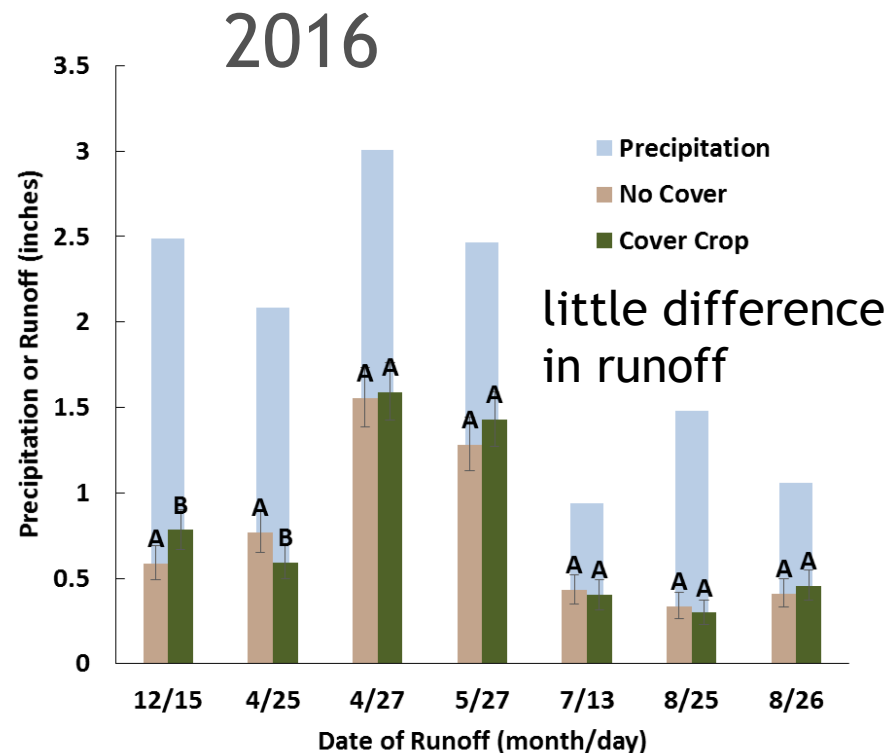
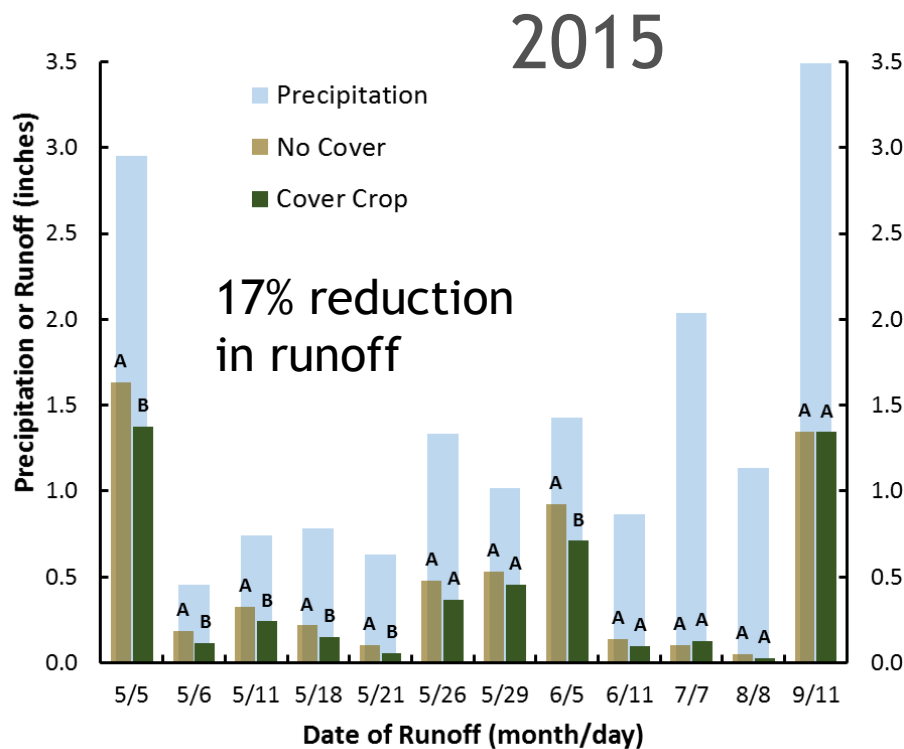
# Agricultural systems require time to fully respond to treatments

Completed 2 years of a 5-year study



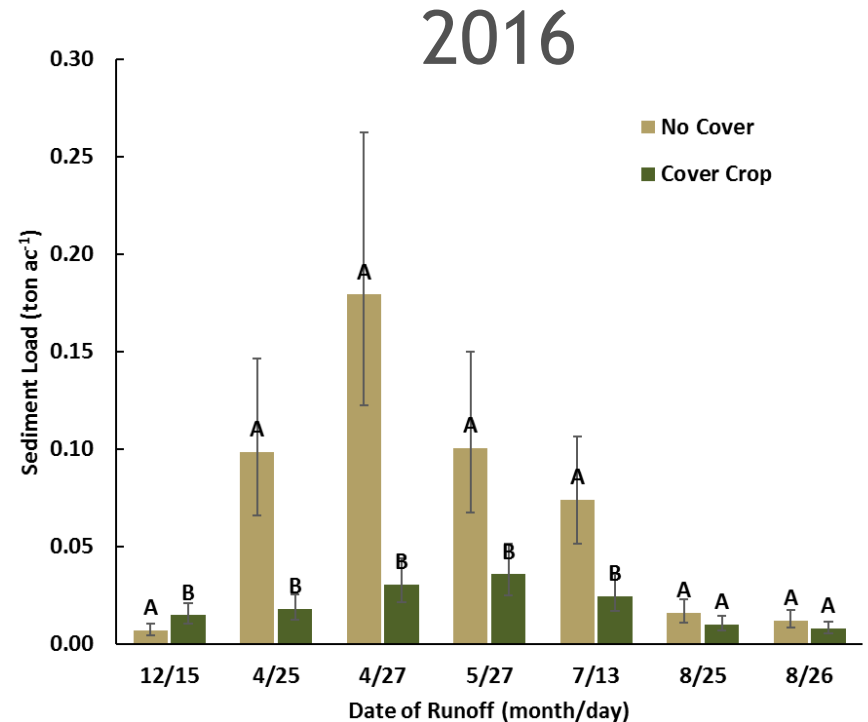
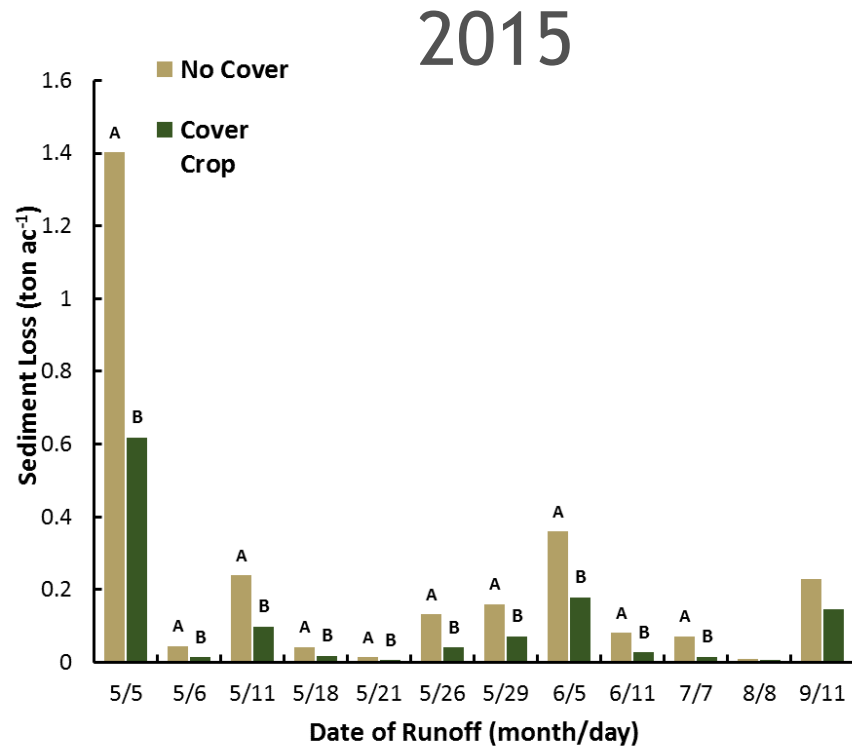


# Cover crop impacts on runoff



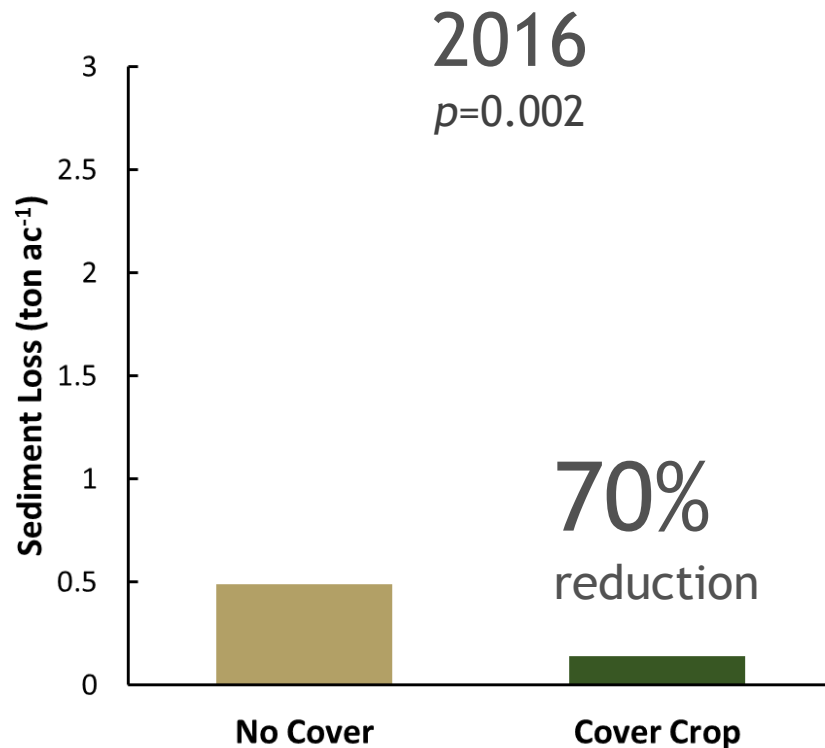
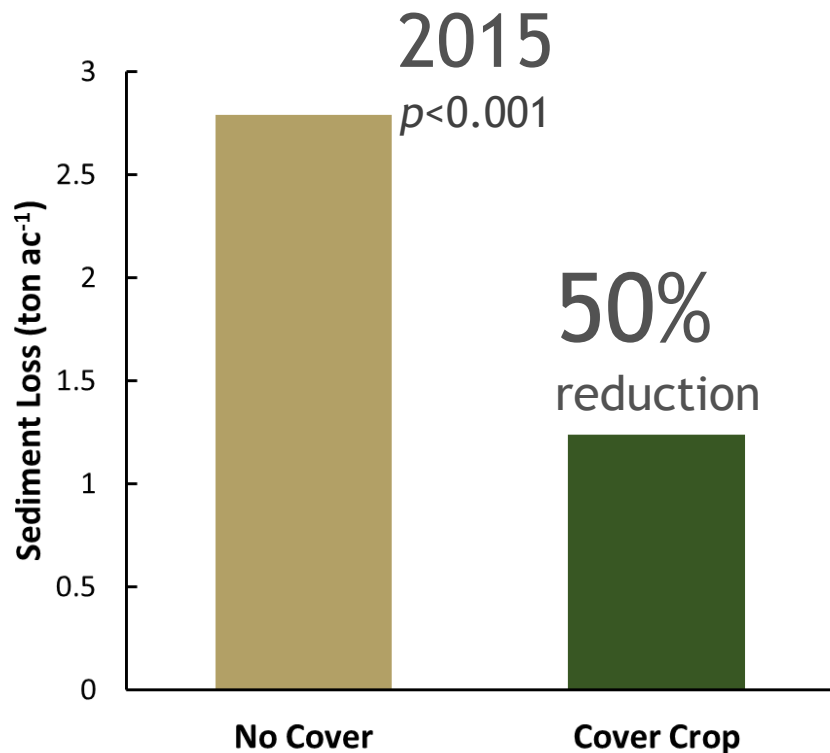


# Cover crop effects on sediment loss



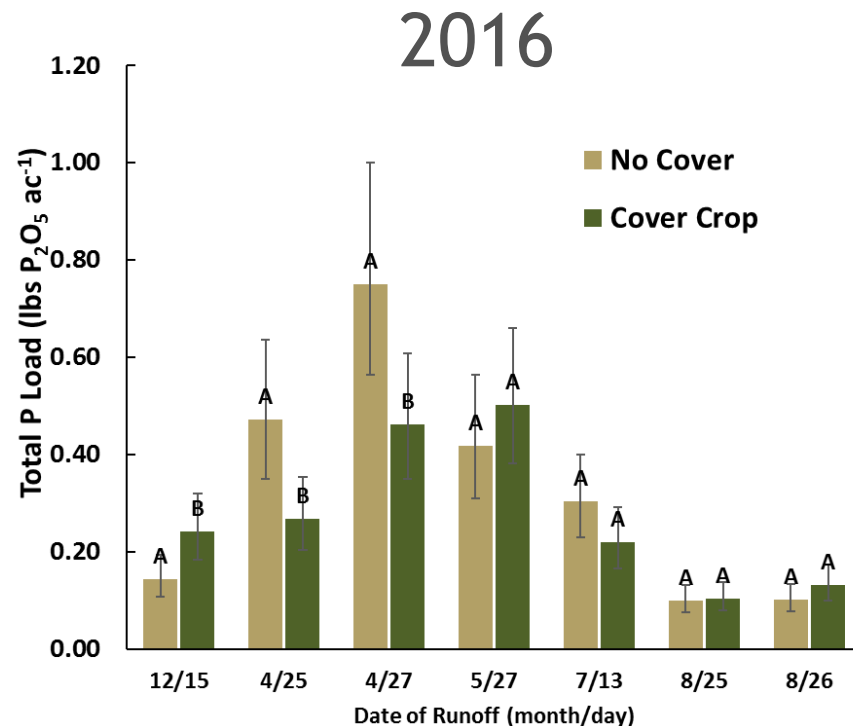
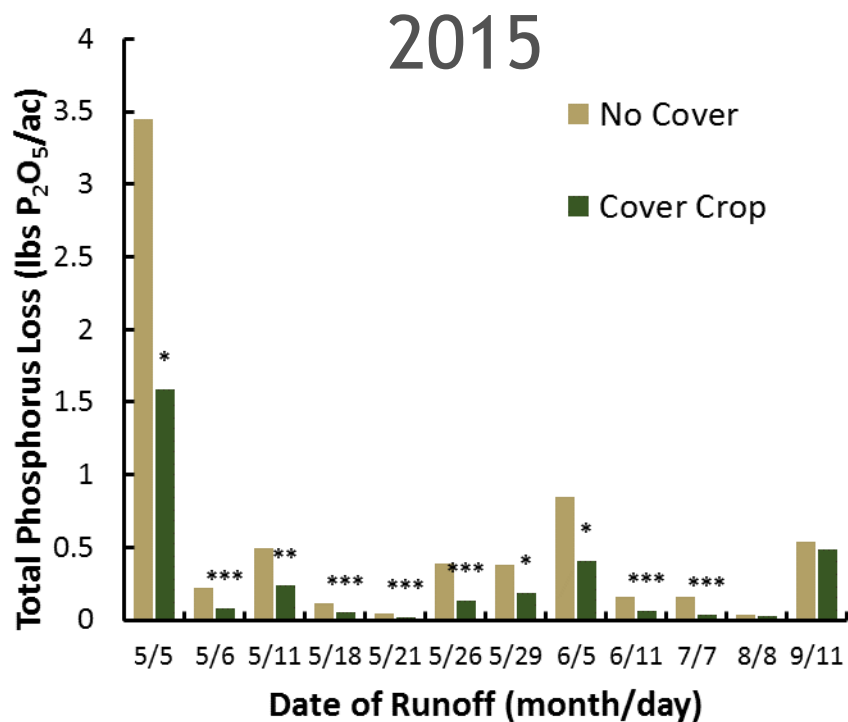


# Cover crop effects on sediment loss



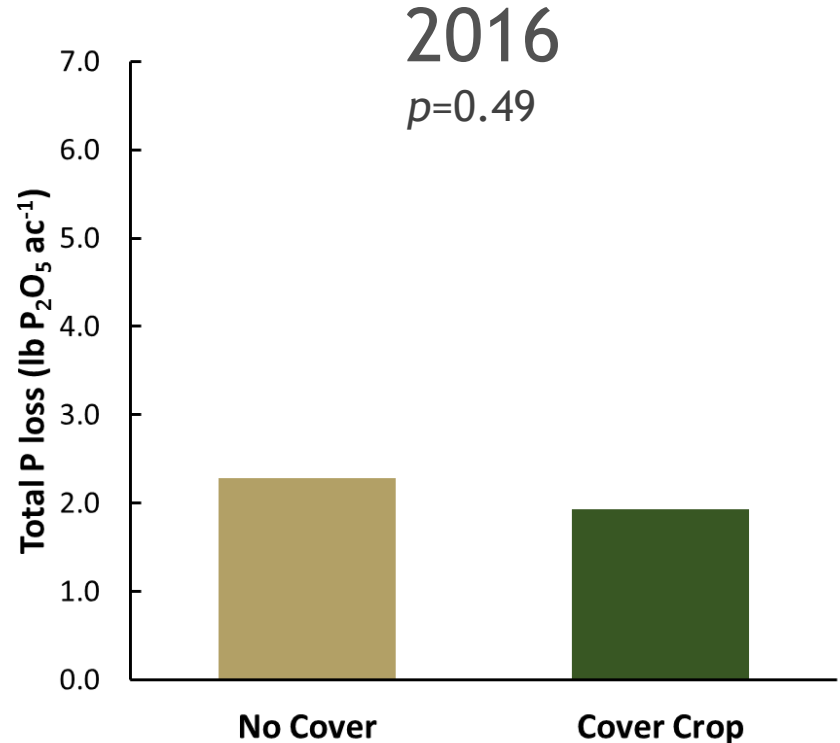
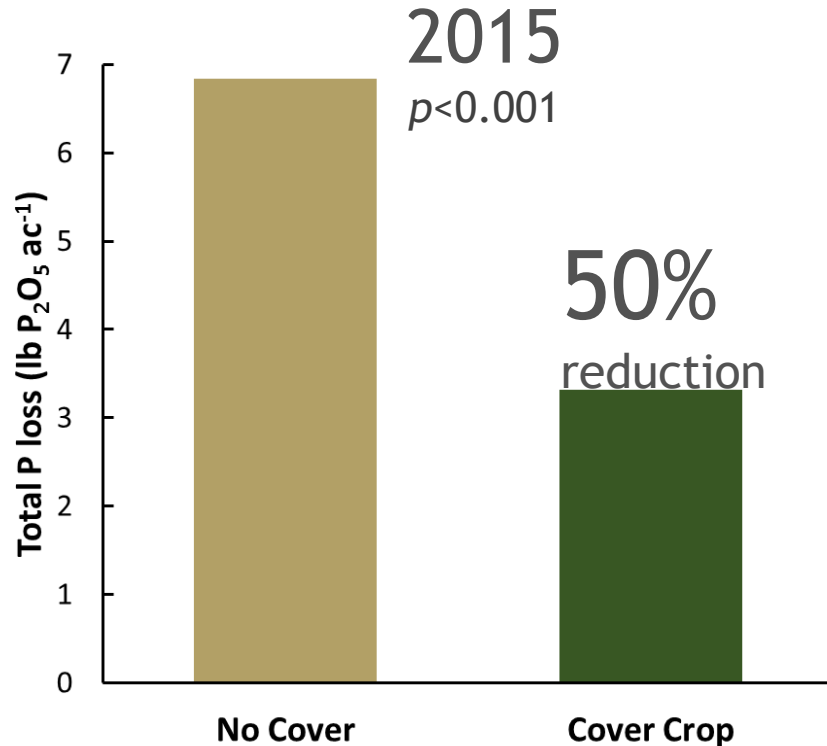


# Cover crop effects on total P loss



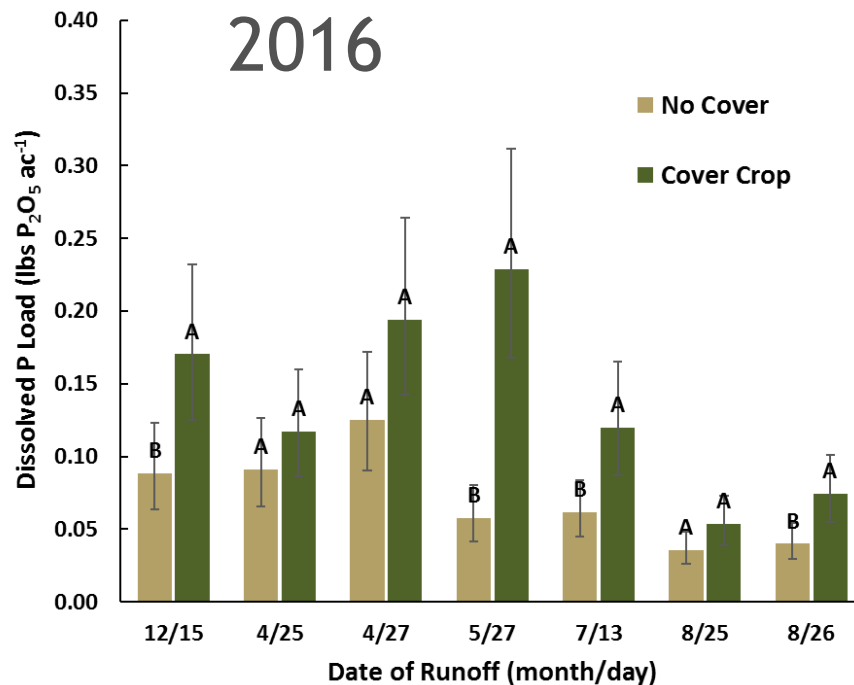
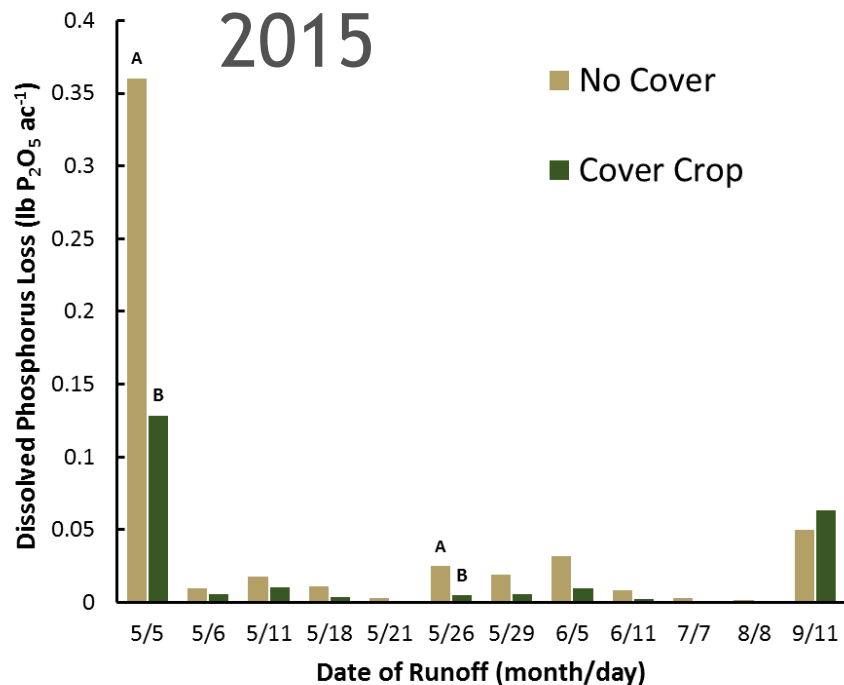


# Cover crop effects on total P loss

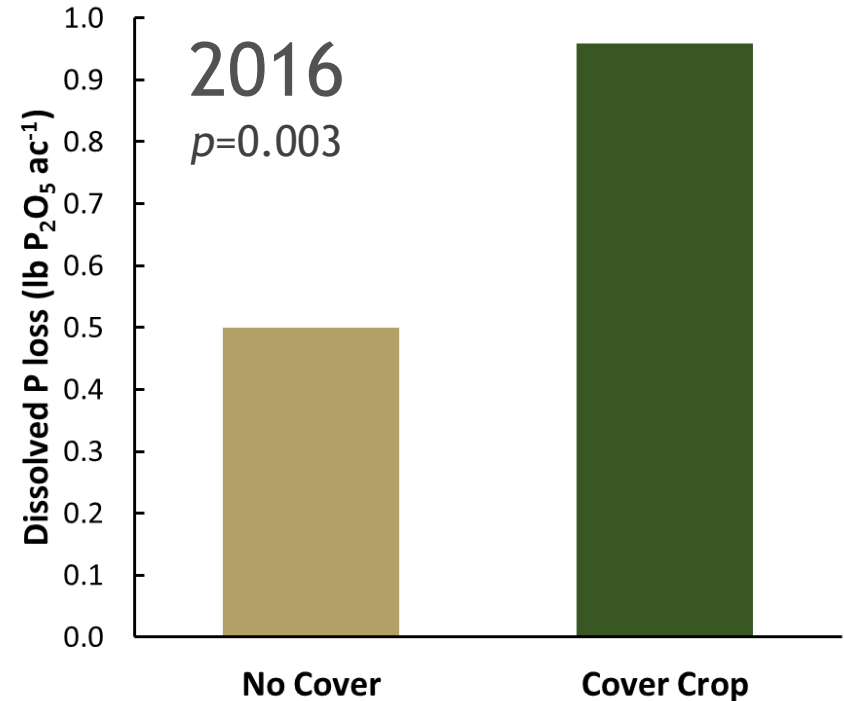
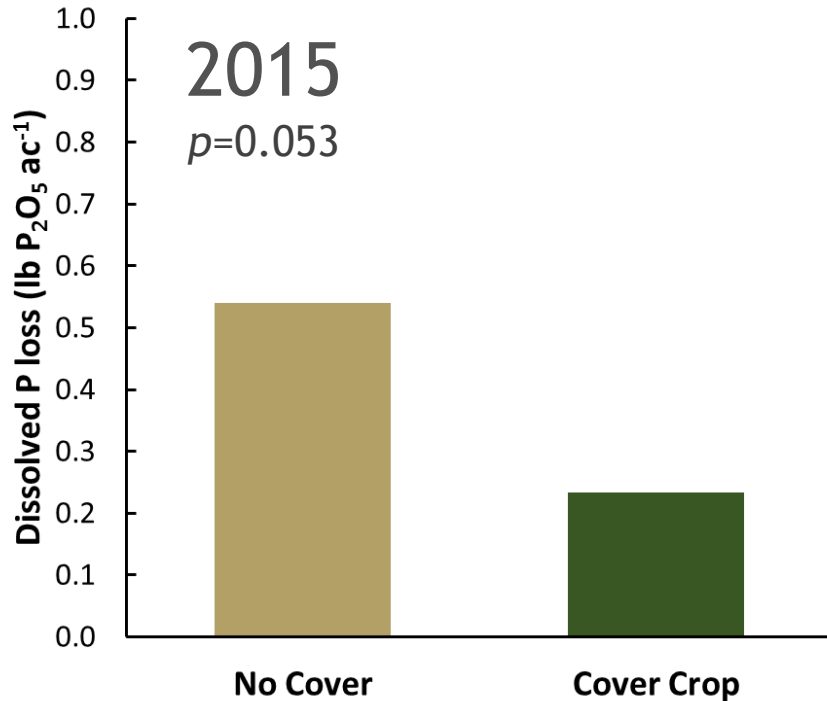




# Cover crop effects on dissolved P loss

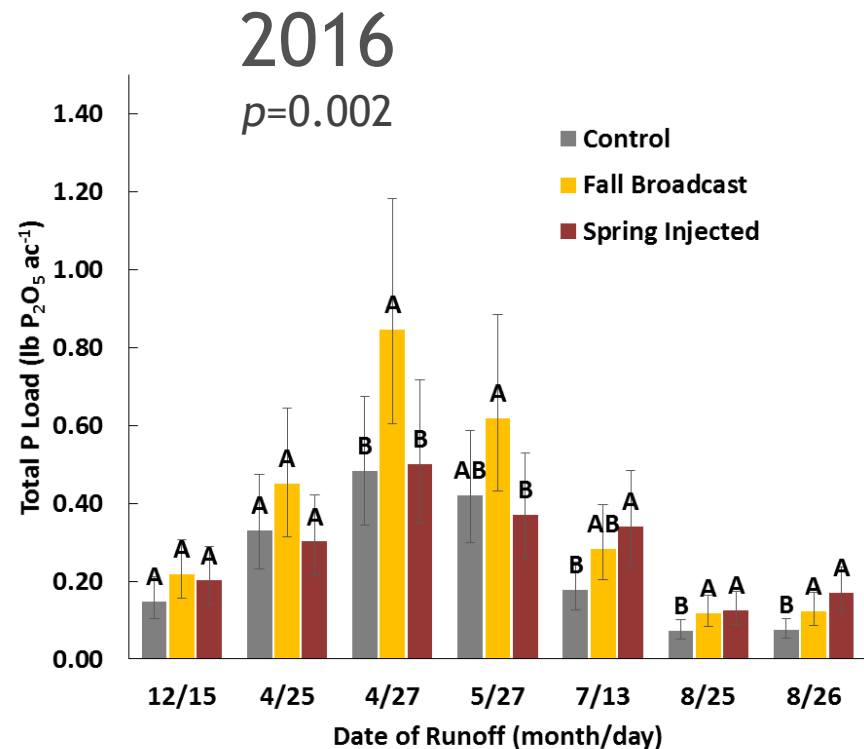
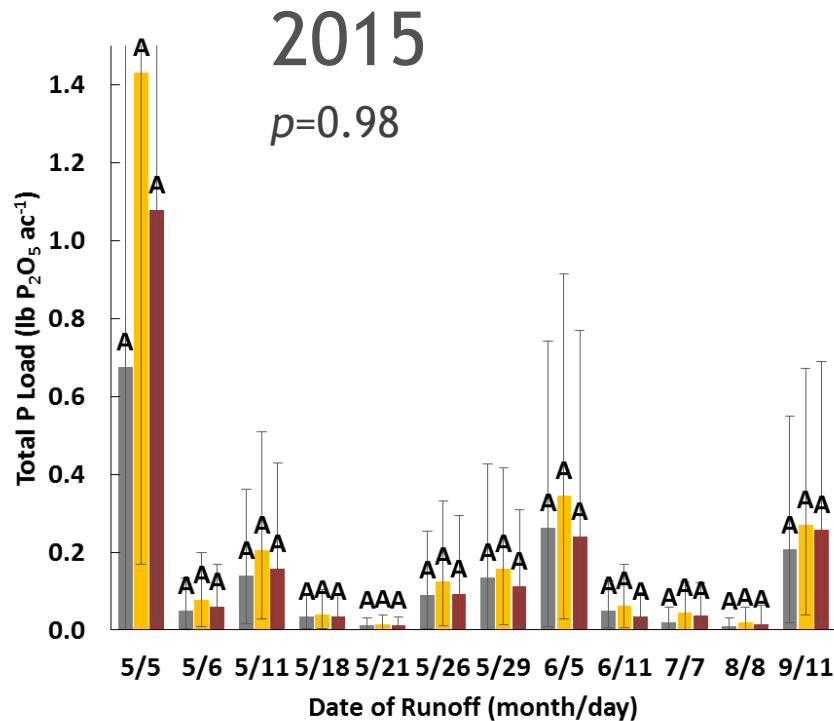


# Cover crop effects on dissolved P loss

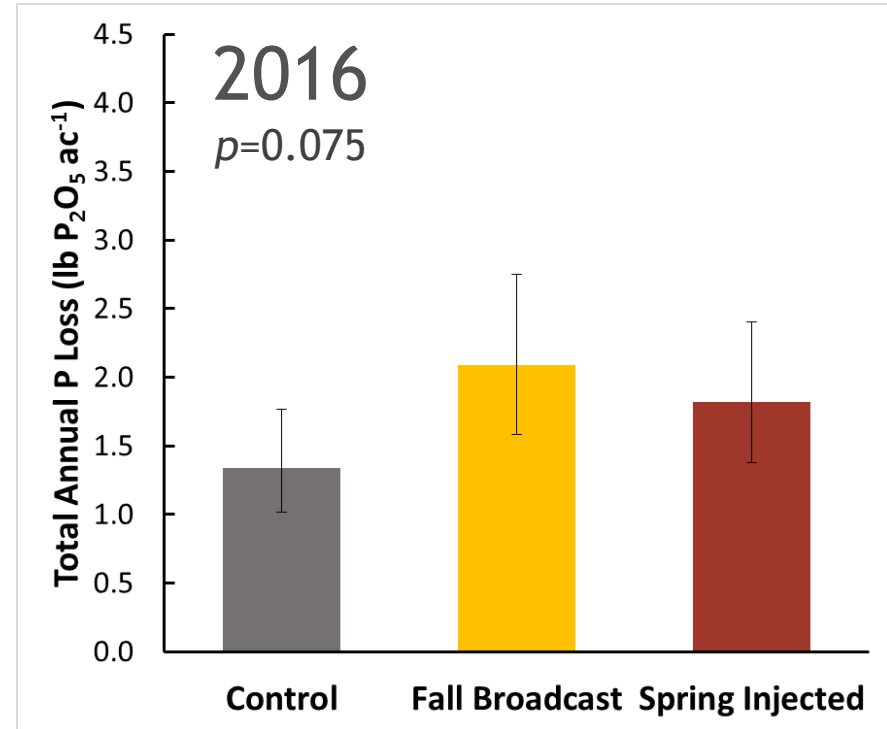
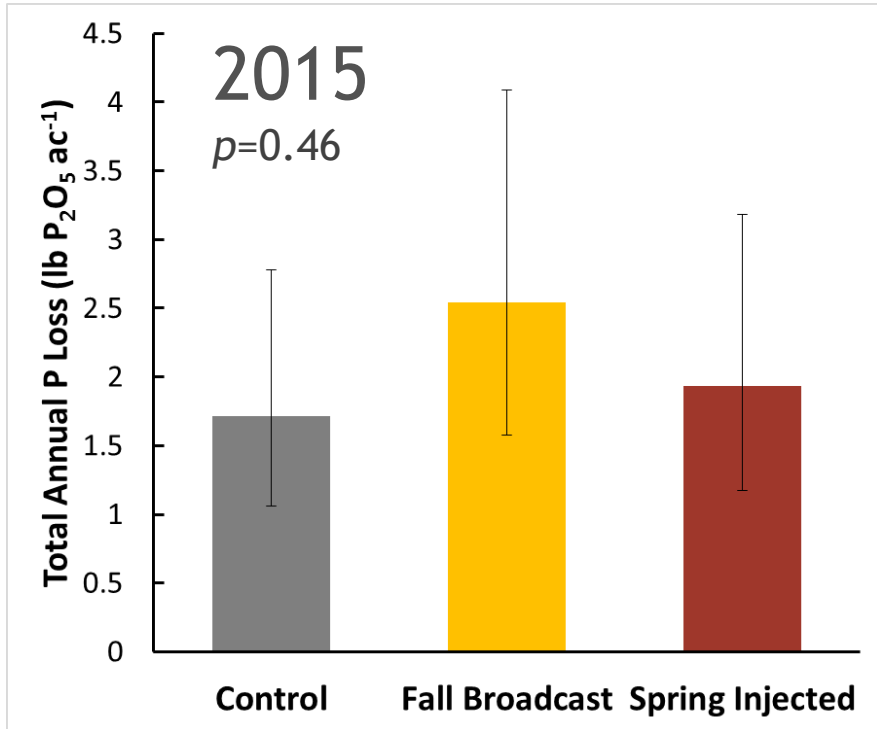




# Fertilizer placement effects on total P loss in runoff water

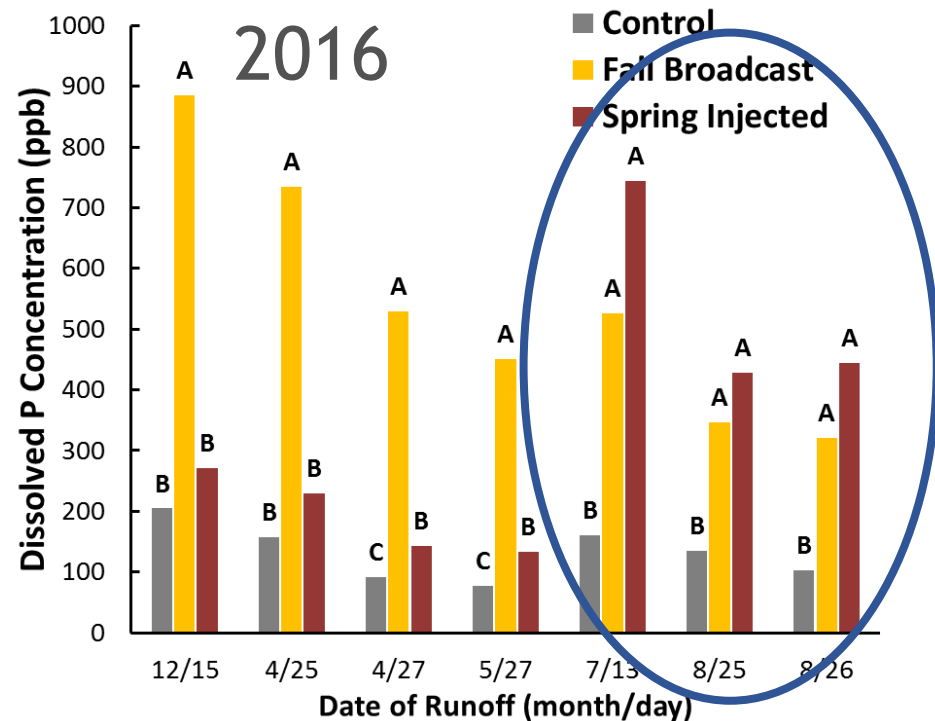
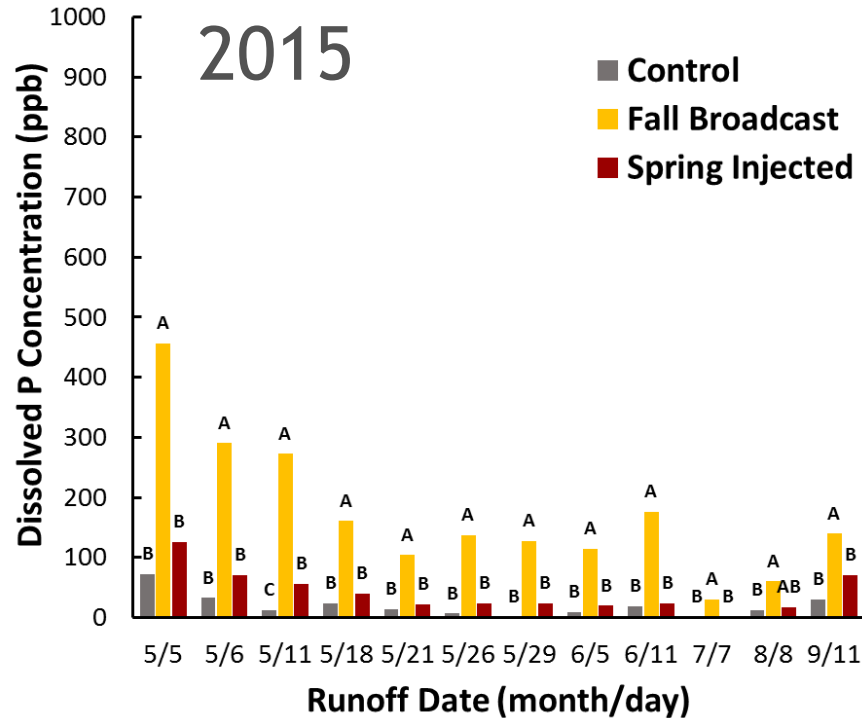


# Fertilizer placement effects on total P loss in runoff water





# Fertilizer placement effects on dissolved P concentration in runoff water



# Summary of Preliminary Data

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- Cover crops reduce sediment loss
- Cover crops will influence runoff (some decrease, some increase)
- Cover crops influence total P and dissolved P loss (some decrease, some increase)
- Placement had little effect on total P loss *\*\*if at the right time\*\**
- surface broadcast had higher surface soil test P and higher dissolved P loss.





# Collaborative efforts: On-Farm Research

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# Thank you to our funding sources

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Research  
Fund

**KANSAS STATE**  
UNIVERSITY

Department of Agronomy



United States Department of Agriculture  
Natural Resources Conservation Service



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# Questions?

